

Illumination and Signal Material

Basis of Acceptance

A certificate of materials origin is required before use for all materials made of steel or iron on Federally funded projects.

Verify that all materials are either RAM or QPL approved before use. If an *and/or* is included in the acceptance requirements statement of this document then there is a QPL approved product available (under acceptance code 3001). If the QPL approved product is used then the basis of acceptance will be visual verification of the approved product. Visual field verification must be documented in the materials section of the field note record and the specific product, e.g. model number, listed.

I. **Conduit** - Standard Spec (SS) 9-29.1 & Construction Manual (CM) 9-4.64

A. RGS Conduit

1. satisfactory test results and verify on the field note record that approved material was used

B. RGS Hardware/Fittings including: Conduit Bodies, Conduit Covers and Gaskets, Couplings and Elbows, Expansion and Deflection, Ground End Bushings, Liquid Tight Connectors, Locking Nuts, Raintight Hubs, Reducing Bushing & Reducers, Service Entrance Heads, and 3-piece Conduit Couplings

1. approved catalog cuts and/or verify on field note record that approved product was used

C. Colloidal Copper Compound

1. approved catalog cut and/or verify on field note record that approved product was used

D. PVC Conduit

1. satisfactory manufacturers certificate of compliance (MCC), catalog cuts, and/or verify on field note record that approved product was used

E. PVC Hardware/Fittings

1. verify on field note record that approved material was used

II. **Junction Boxes** - SS 9-29.2

A. Molded Composite Material and Cast Iron

1. field verify that approved product was used

B. Precast Concrete

1. verify *WSDOT Inspected* stamp and that approved product was used

III. **Conductors** - SS 9-29.3 & CM 9-4.65

A. Communication Cable, Overhead Multi-Conductor, Pole and Bracket Cable, Single Conductor (grounding and current carrying), Multi-Conductor Traffic Signal Cable, Emergency Vehicle Detector/Indicator Cable (2 or 3 conductor shielded)

1. satisfactory test results if not in the QPL; verify on field note record that approved material was used

B. Ground Rods and Hardware

1. approved catalog cuts and/or verify on field note record that approved product was used

IV. **Messenger Cable, Fittings, and Ties** - SS 9-29.4

A. Cable

1. satisfactory test results if not in the QPL; verify on field note record that approved material was used

B. Fittings and Ties

1. approved catalog cuts and/or verify on field note record that approved product was used

V. **Pole Line Hardware** - SS 9-29.5

A. approved catalog cuts and/or verify on field note record that approved product was used

VI. **Light and Signal Standards** - SS 9-29.6 and CM 9-4.66 & 9-4.67

A. Steel Light and Signal Standards

1. Standards Type PPB, PS, RM, FB, I, II, III, IV, V, and SD
 - a) approved shop drawings and verify *Approved for Shipment* stamp

- 2. Slip Base Hardware
 - a) verify *Approved for Shipment* stamp and verify that approved material was used
- B. Foundation Hardware Etc.
 - 1. Anchor bolts
 - a) verify that bolts are stamped or tagged *Approved for Shipment*
- C. Timber Light Standards and Timber Strain Poles
 - 1. verify that supports are tagged *Approved for Shipment* and verify that pole dimensions match those required in the Special Provisions
- D. Treated Timber Service Supports
 - 1. verify that supports are tagged *Approved for Shipment*
- VII. **Luminaire Fusing and Electrical Connections at Light Standard Bases** - SS 9-29.7
 - A. Disconnect Kits, Fuses, Wire Connectors, Wire Marking Sleeves
 - 1. approved catalog cuts and/or verify on field note record that approved product was used
- VIII. **Luminaires** - SS 9-29.10 and CM 9-4.68
 - A. Lamps and Luminaires
 - 1. satisfactory MCC, approved catalog cuts, and/or verify on field note record that approved product was used
- IX. **Control Equipment** - SS 9-29.11
 - A. Time Clock Controls and Photoelectric Controls
 - 1. approved catalog cuts and/or verify on field note record that approved product was used
- X. **Electrical Splice Materials** - SS 9-29.12
 - A. Illumination Circuit Splices and Traffic Signal Splice Material
 - 1. Split Bolt Splice Connectors, Cast Epoxy Splice Connectors, Heat Shrink Splice Kits, Wire Markers
 - a) approved catalog cuts and/or verify on field note record that approved product was used
- XI. **Traffic Signal Controllers** - SS 9-29.13 and CM 9-4.79

- A. Traffic Signal Controllers
 - 1. approved shop drawings, satisfactory test results, and verify that approved material was used
 - B. Emergency Preemption Detectors
 - 1. satisfactory test results, and verify that approved material was used
 - C. Radio Interference Suppressers
 - 1. verify that approved product was used
 - D. Traffic-Actuated Controllers
 - 1. AC Isolater, DC Isolater, Discriminator Module, Modem Module, Program Module, Conflict Monitors
 - a) verify that approved products were used
 - 2. Auxiliary Equipment
 - a) Flash Transfer Relay, Flasher, Load Switch, Transient Voltage Protection
 - (1) verify that approved products were used
 - 3. Controller Cabinets
 - a) verify that approved product was used
- XII. **Flashing Beacon Control** - SS 9-29.15
- A. approved catalog cuts for components and box and verify that approved product was used
- XIII. **Vehicular Signal Heads** - SS 9-29.16
- A. Optically Programmed Adjustable Face 300 mm Traffic Signal, Conventional Traffic Signal Heads, and Polycarbonate Traffic Signal Heads
 - 1. approved catalog cuts and/or verify that approved products were used
- XIV. **Signal Head Mounting Brackets and Fittings** - SS 9-29.17
- A. approved catalog cuts and/or verify that approved products were used
- XV. **Vehicle Detector** - SS 9-29.18
- A. Induction Loop Detectors
 - 1. Detector Loop Lead In Cable (2 conductor shielded), Preempt Lead In Cable (3 conductor shielded), and Detector Loop Wire

- a) satisfactory test results if not in the QPL; verify on field note record that approved product was used
- 2. Preformed Detector Loops
 - a) see Special Provisions
- 3. Amplifier
 - a) approved catalog cut and/or verify that approved products were used
- 4. Induction Loop Sealant
 - a) approved catalog cut and/or verify that approved products were used
- B. Magnetometer Detectors
 - 1. approved catalog cuts and verify that approved product was used
- XVI. **Pedestrian Push Buttons** - SS 9-29.19
 - A. approved catalog cut and/or verify that approved product was used
- XVII. **Pedestrian Signal** - SS 9-29.20
 - A. Audible and Neon Grid Types
 - 1. approved catalog cut and/or verify that approved product was used
- XVIII. **Flashing Beacon** - SS 9-29.21
 - A. approved catalog cuts and shop drawings and verify that approved product was used
- XIX. **Service Cabinets** - SS 9-29.24
 - A. Cabinets and Components
 - 1. satisfactory shop drawings, approved catalog cuts and verify that approved product was used
 - B. Electrical Circuit Breakers and Contactors
 - 1. approved catalog cuts and verify that approved product was used
- XX. **Amplifier, Transformer, and Terminal Cabinets** - SS 9-29.25
 - A. approved catalog cuts and shop drawings and verify that approved products were used
- XXI. **Sign Lighting** - SS 8-21.3(10)A

- A. Sign Light Fixture
 - 1. approved catalog cuts and verify that approved product was used
- B. Isolation Switch
 - 1. approved catalog cut and/or verify that approved product was used
- C. Sign Light Fixture Mounting Plate
 - 1. verify *Approved for Shipment* stamp and verify that approved product was used
- D. Bolts, Nuts, Washers, and Hardware
 - 1. satisfactory MCC and verify that approved products were used

XXII. **Concrete and Rebar** - SS 6-02 & 9-07 and CM 9-4.26 & 9-4.76

- A. Concrete for Luminaire Foundations and Cabinet Bases
 - 1. commercial concrete acceptance, i.e. acceptable certificate of compliance (delivery ticket), and mill test report number for cement
- B. Concrete for Signal Foundations and High Mast Luminaires
 - 1. satisfactory test results and satisfactory certificate of compliance (delivery ticket) including mill test report number for cement
- C. Rebar
 - 1. if not small quantity then satisfactory MCC, mill test reports, and verify that approved materials were used

| Test Results | Approved for Shipment Stamp | MCC | Shop Drawings | Catalog Cuts | Visual Verification | CMO |
|--------------|-----------------------------|-----|---------------|--------------|---------------------|-----|
|--------------|-----------------------------|-----|---------------|--------------|---------------------|-----|

Conduit

| | | | | | | | |
|---------------------------|----------|--|----------|--|----------|----------|----------|
| RGS | X | | | | | X | Y |
| RGS Hardware | | | | | <i>x</i> | X | Y |
| Colloidal Copper Compound | | | | | <i>x</i> | X | |
| PVC | | | <i>x</i> | | <i>x</i> | X | |
| PVC Fittings | | | | | | X | |

Junction Boxes

| | | | | | | | |
|------------------------------|--|----------|--|--|--|----------|----------|
| Molded Composite & Cast Iron | | | | | | X | Y |
| Precast Concrete | | X | | | | X | Y |

Conductors

| | | | | | | | |
|--|----------|--|--|--|----------|----------|--|
| Comm. Cable, Overhead Multi-conductor, Pole and Bracket, Single Conductor (grounding and Current Carrying), Multi-Conductor Traffic Signal Cable, Emergency Vehicle Detector/Indicator Cable | <i>x</i> | | | | | X | |
| Ground Rods & Hardware | | | | | <i>x</i> | X | |

Messenger Cable

| | | | | | | | |
|-----------------|----------|--|--|--|----------|----------|--|
| Cable | <i>x</i> | | | | | X | |
| Fittings & Ties | | | | | <i>x</i> | X | |

Pole Line Hardware

| | | | | | | | |
|----------------------------------|--|--|--|--|----------|----------|--|
| Miscellaneous Pole Line Hardware | | | | | <i>x</i> | X | |
|----------------------------------|--|--|--|--|----------|----------|--|

Light and Signal Standards

| | | | | | | | |
|---|--|----------|--|--|--|-----------|----------|
| PPB, PS, RM, FB, I II, III, IV, V, and SD | | X | | | | X | Y |
| Slip Base Hardware | | X | | | | X | Y |
| Foundation Anchor Bolts | | X | | | | X | Y |
| Timber Light Standards | | X | | | | X* | |
| Timber Strain Poles and Timber Service Supports | | X | | | | X | |

| Test | Approved | MCC | Shop | Catalog | Visual | CMO |
|------|----------|-----|------|---------|--------|-----|
|------|----------|-----|------|---------|--------|-----|

Results for Shipment Stamp Drawings Cuts Verification

Luminaires

Lamps and Luminaires

| | | | | | | |
|--|--|----------|--|----------|----------|--|
| | | <i>x</i> | | <i>x</i> | X | |
|--|--|----------|--|----------|----------|--|

Control Equipment

Time Clock Controls and Photoelectric Controls

| | | | | | | |
|--|--|--|--|----------|----------|--|
| | | | | <i>x</i> | X | |
|--|--|--|--|----------|----------|--|

Electrical Splice Materials

Split Bolt Splice Connectors, Cast Epoxy Splice Connectors, Heat Shrink Splice Kits, Wire Markers

| | | | | | | |
|--|--|--|--|----------|----------|--|
| | | | | <i>x</i> | X | |
|--|--|--|--|----------|----------|--|

Traffic Signal Controllers

Controllers

| | | | | | | |
|----------|--|--|----------|--|----------|--|
| X | | | X | | X | |
|----------|--|--|----------|--|----------|--|

Emergency Preemption Detectors

| | | | | | | |
|----------|--|--|--|--|----------|--|
| X | | | | | X | |
|----------|--|--|--|--|----------|--|

Radio Interference Suppressers

| | | | | | | |
|--|--|--|--|--|----------|--|
| | | | | | X | |
|--|--|--|--|--|----------|--|

AC and DC Isolators, Discriminator Module, Modem Module, Program Module, Conflict Monitors

| | | | | | | |
|--|--|--|--|--|----------|--|
| | | | | | X | |
|--|--|--|--|--|----------|--|

Flash Transfer Relay, Flasher, Load Switch, Transient Voltage Protection

| | | | | | | |
|--|--|--|--|--|----------|--|
| | | | | | X | |
|--|--|--|--|--|----------|--|

Traffic Actuated Controller Cabinets

| | | | | | | |
|--|--|--|--|--|----------|----------|
| | | | | | X | <i>Y</i> |
|--|--|--|--|--|----------|----------|

Flashing Beacon Control

Controllers

| | | | | | | |
|--|--|--|--|----------|----------|--|
| | | | | X | X | |
|--|--|--|--|----------|----------|--|

Vehicular Signal Heads

Optically Programmed Adjustable Face 300 mm Traffic Signal, Conventional Traffic Signals, and Polycarbonate Traffic Signal Heads

| | | | | | | |
|--|--|--|--|----------|----------|--|
| | | | | X | X | |
|--|--|--|--|----------|----------|--|

Signal Head Mounting Brackets and Fittings

Brackets and Fittings

| | | | | | | |
|--|--|--|--|----------|----------|--|
| | | | | X | X | |
|--|--|--|--|----------|----------|--|

Test Results Approved for MCC Shop Drawings Catalog Cuts Visual Verification CMO

Shipment
Stamp

n

Vehicle Detector

| | | | | | | | |
|--|----------|--|--|--|--|-----------|--|
| Detector Loop Lead In Cable, Preempt Lead In Cable, and Detector Loop Wire | <i>x</i> | | | | | X | |
| Preformed Detector Loops | | | | | | X* | |
| Amplifier | | | | | | X | |
| Induction Loop Sealant | | | | | | X | |
| Magnetometer Detectors | | | | | | X | |

Pedestrian Push Buttons

| | | | | | | | |
|---------------------------------|--|--|--|--|----------|----------|--|
| Pedestrian Push Button Assembly | | | | | <i>x</i> | X | |
|---------------------------------|--|--|--|--|----------|----------|--|

Flashing Beacon

| | | | | | | | |
|------------------|--|--|--|----------|----------|----------|--|
| Flashing Beacons | | | | X | X | X | |
|------------------|--|--|--|----------|----------|----------|--|

Service Cabinets

| | | | | | | | |
|--|--|--|--|----------|----------|----------|----------|
| Cabinets and Components | | | | X | X | X | Y |
| Electrical Circuit Breakers and Contactors | | | | | X | X | |

**Amplifier, Transformer, and
Terminal Cabinets**

| | | | | | | | |
|----------|--|--|--|----------|----------|----------|----------|
| Cabinets | | | | X | X | X | Y |
|----------|--|--|--|----------|----------|----------|----------|

Sign Lighting

| | | | | | | | |
|------------------------------------|--|----------|----------|--|----------|----------|----------|
| Sign Light Fixture | | | | | X | X | |
| Isolation Switch | | | | | <i>x</i> | X | |
| Sign Light Fixture Mounting Plate | | X | | | | X | |
| Bolts, Nuts, Washers, and Hardware | | | X | | | X | Y |

Test Approved MCC Shop Catalog Visual CMO

| | Results | for | Drawings | Cuts | Verificatio n | |
|---|----------|-------------------|----------|------|------------------|----------|
| | | Shipment Stamp | | | | |
| <u>Concrete and Rebar</u> | | | | | | |
| Concrete for Luminaire Foundations and Cabinets Bases | | | | | X** | |
| Concrete for Signal Foundations and High Mast Luminaires | X | | | | X** | |
| Rebar | | | | | X*** | Y |

x - Denotes additional acceptance procedure for a non-QPL approved product

Y - Required for Fed funded projects

* - See the Special Provisions

** - Certificate of Compliance that includes the Mill Test Report Number for
Cement

*** - MCC and mill test reports are required in addition to visual verification if not a small
quantity